

(No Model.)

3 Sheets—Sheet 1.

A. J. MAGINNIS.
STEAM WINCH.

No. 337,175.

Patented Mar. 2, 1886.

Fig. 3.

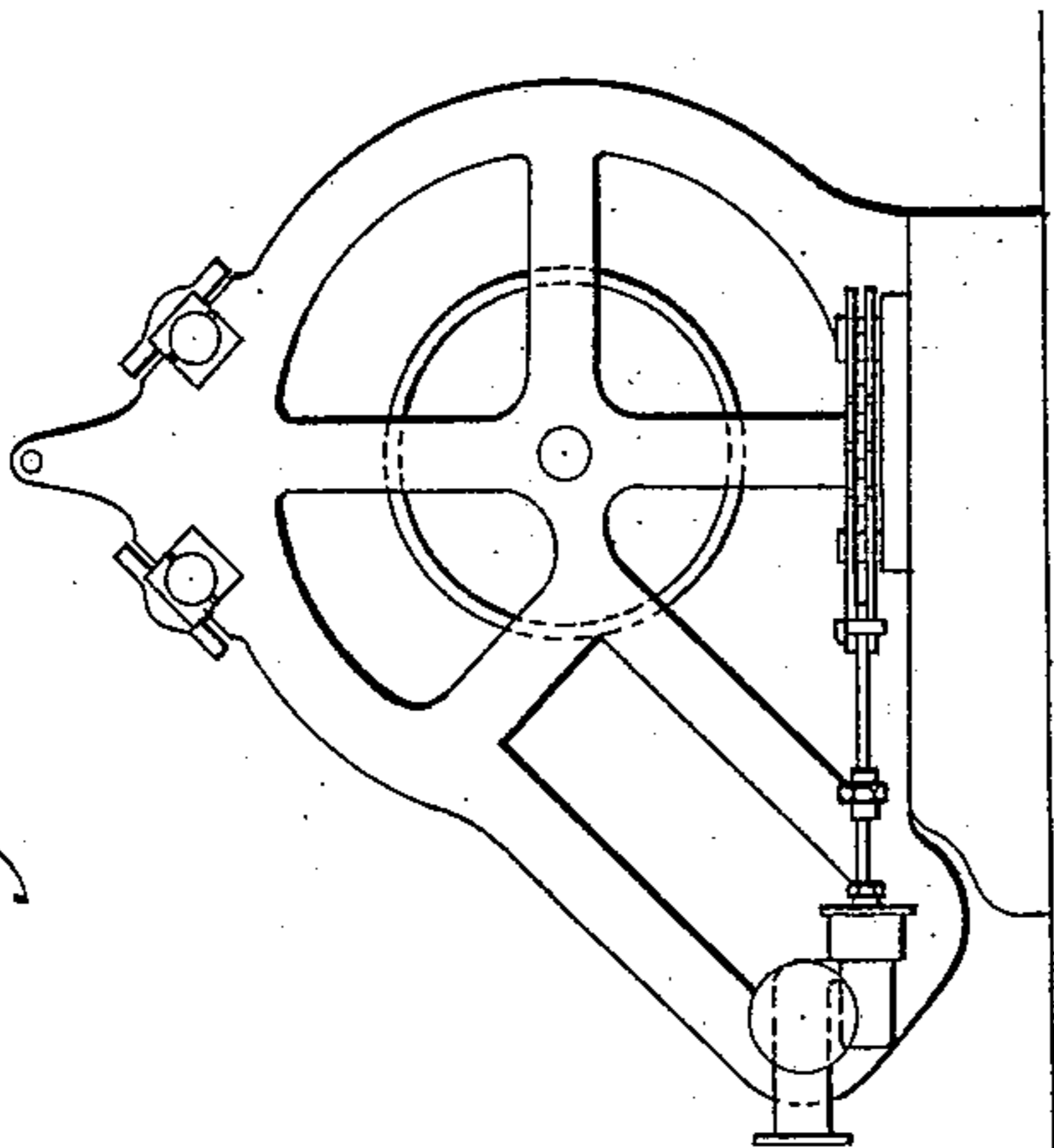
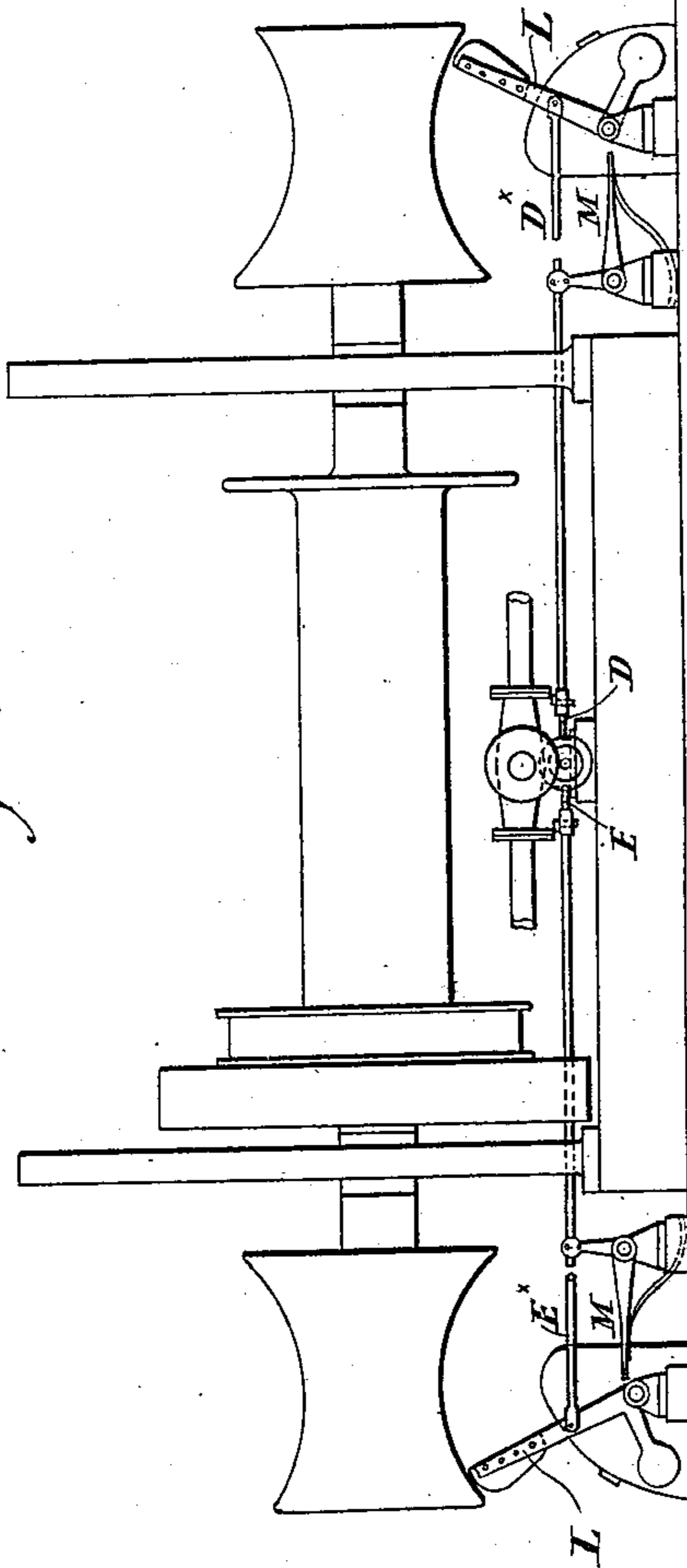
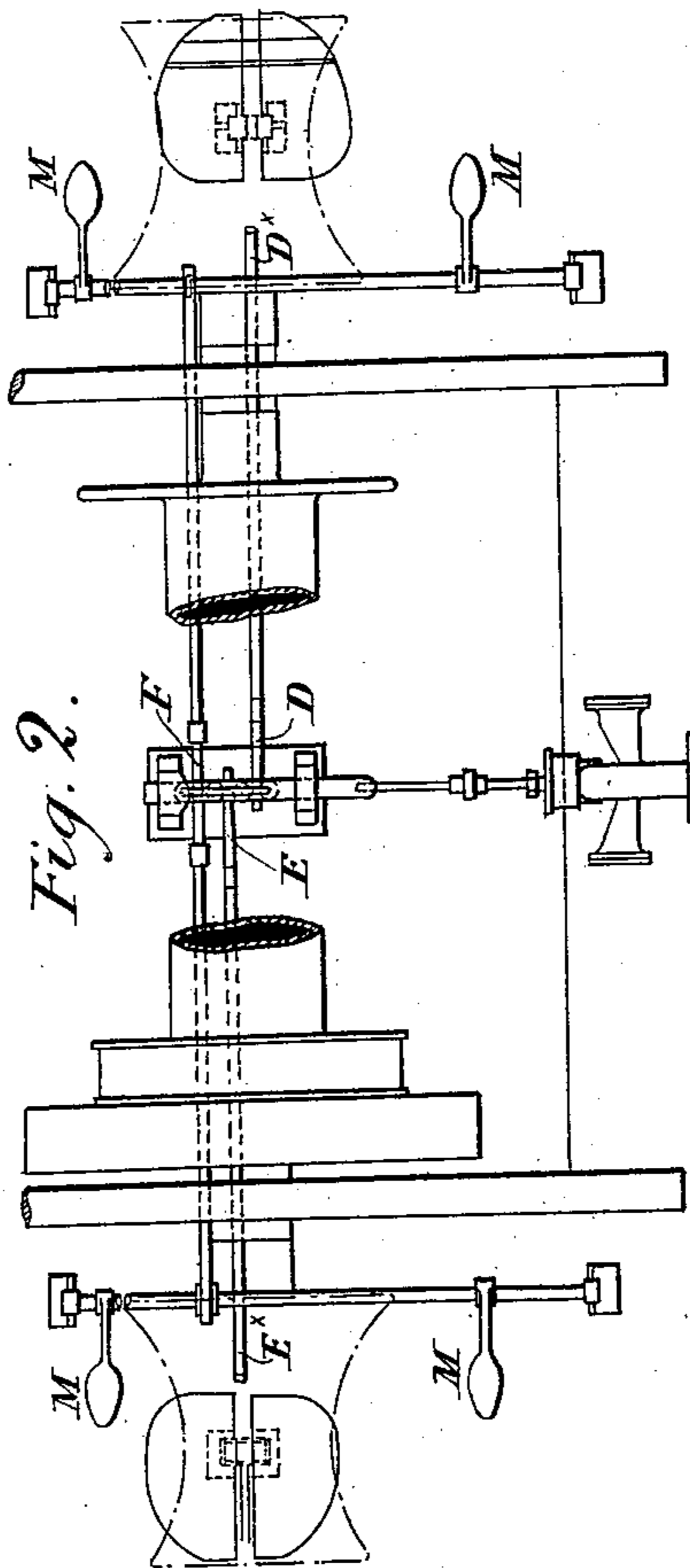


Fig. 1.



Witnesses
Baltus DeLong
Allan M. Lane Abert

Fig. 2.



Inventor
Arthur John Maginnis
By Attorneys
Baldwin Hopkins & Peyton

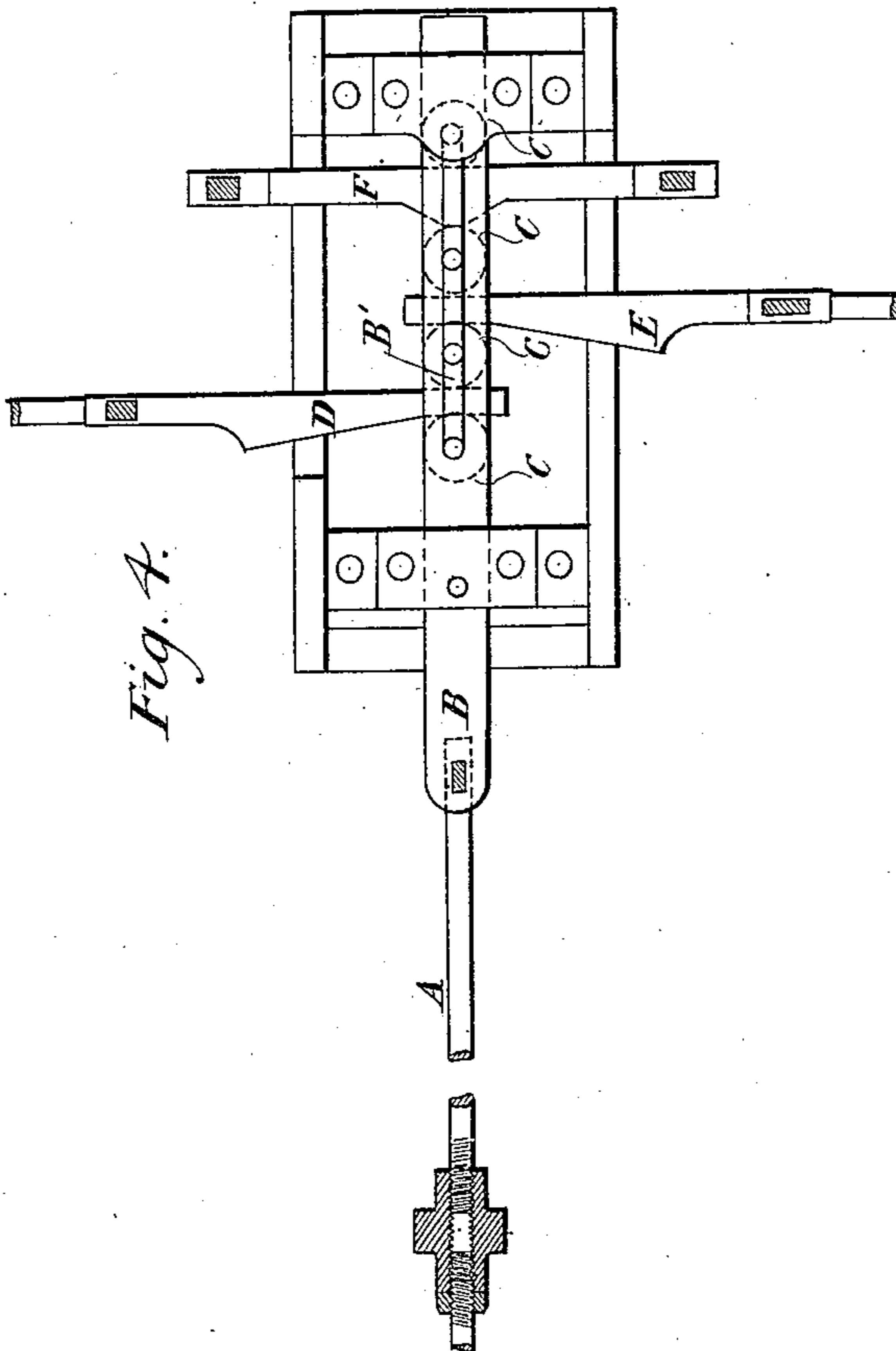
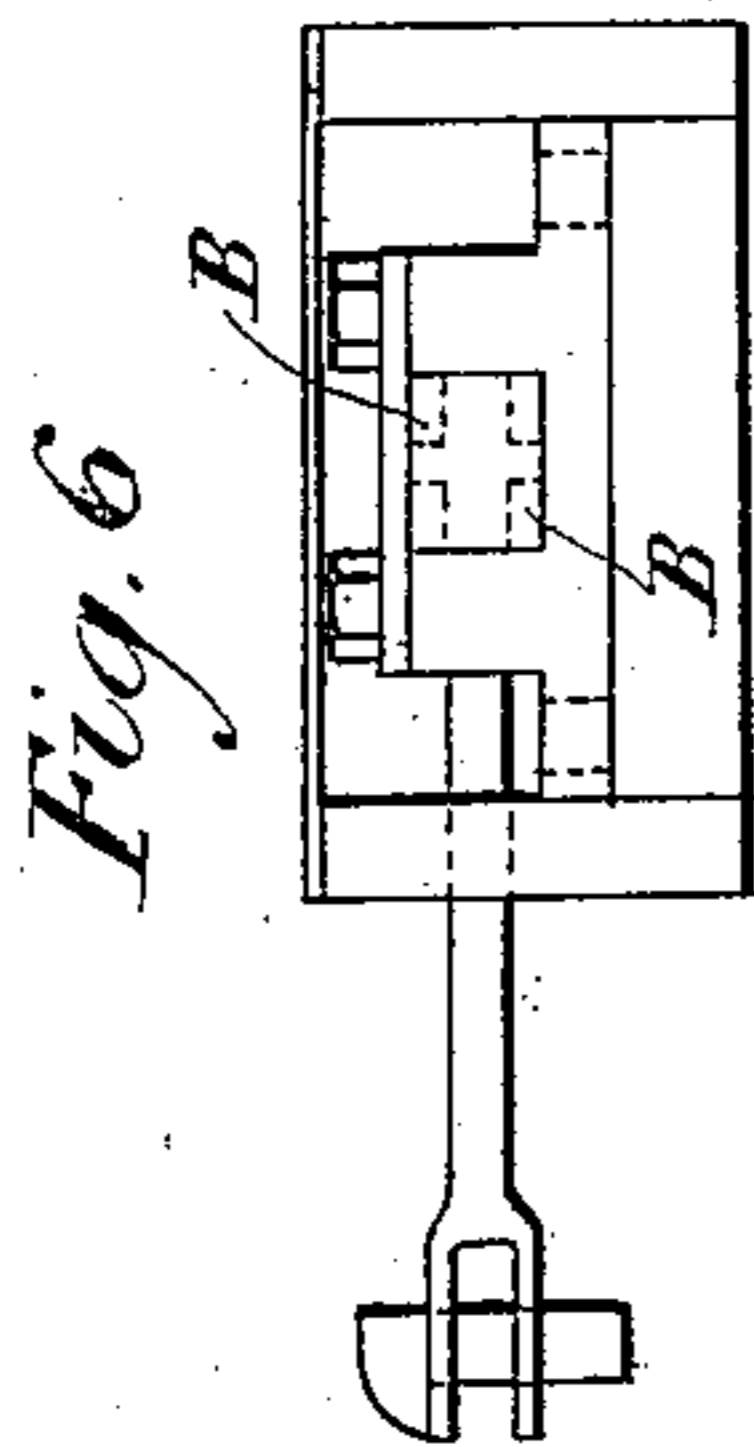
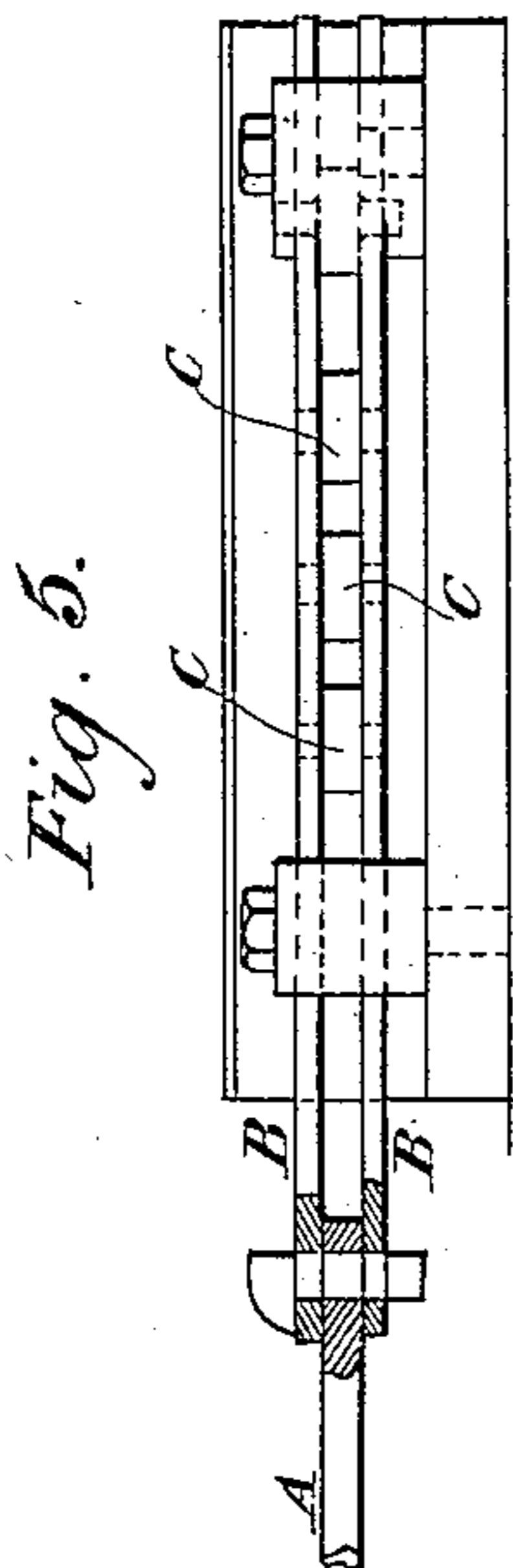
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Allan M. Lane Atk.

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Fig. 9.

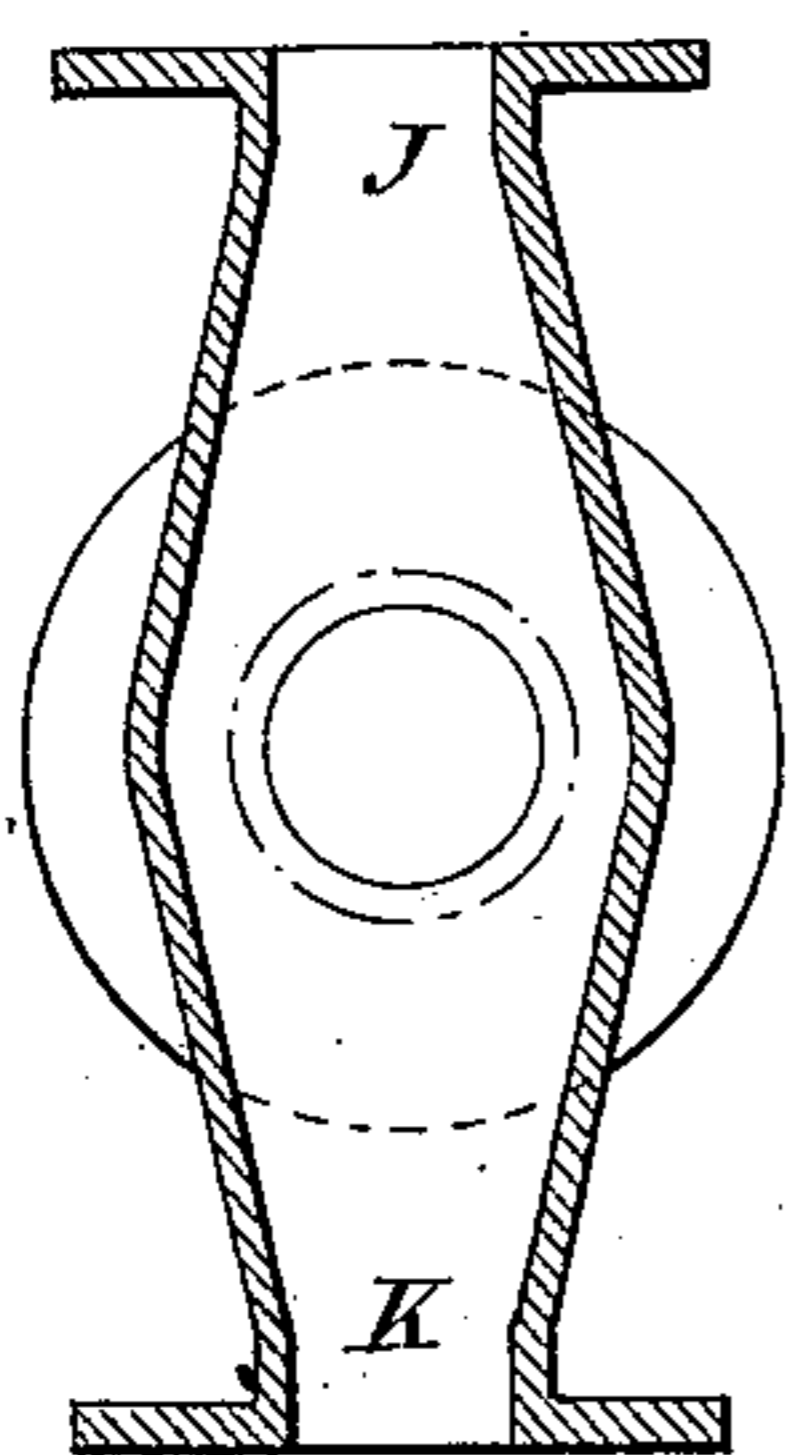


Fig. 7.

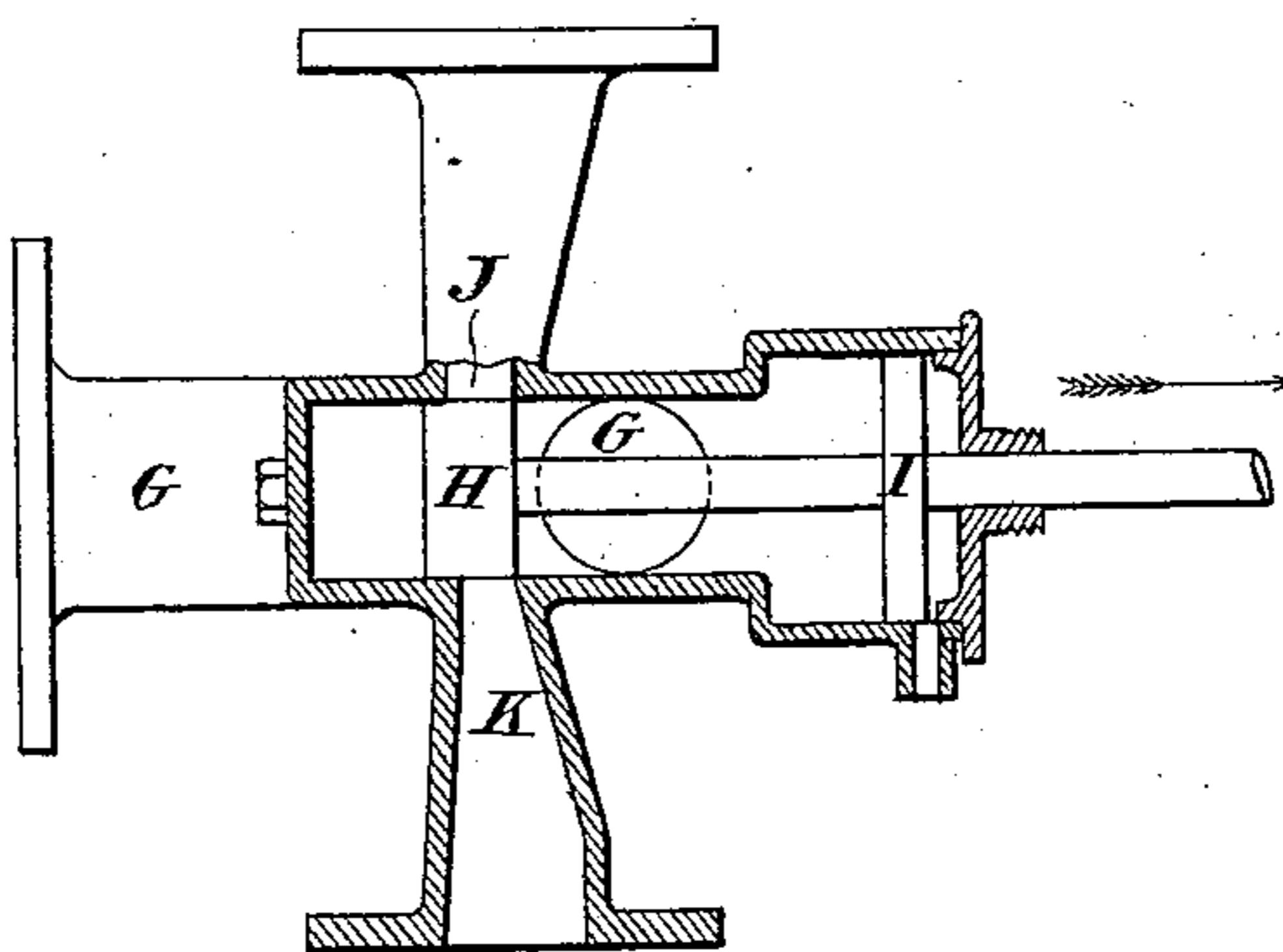
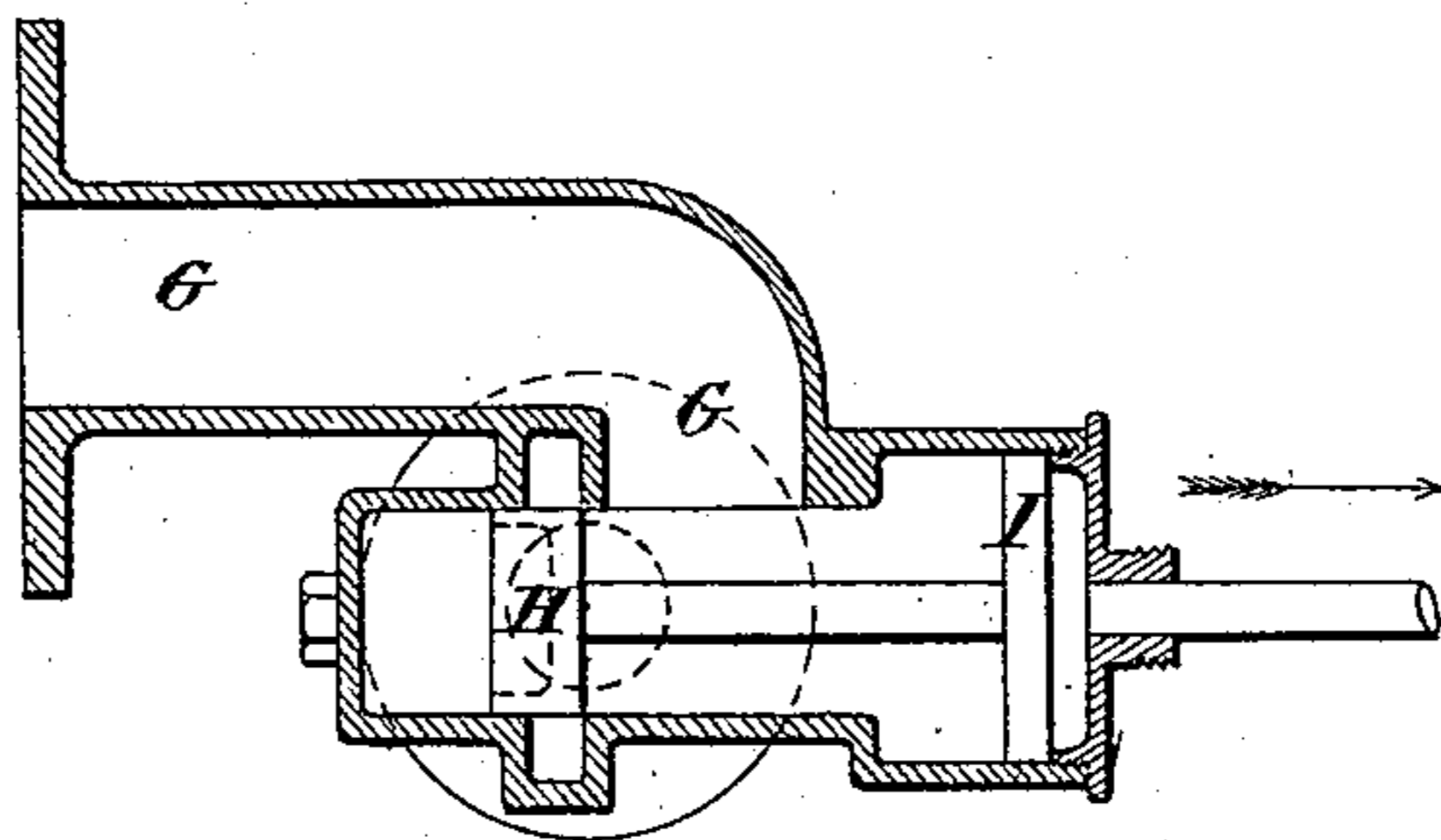


Fig. 8.



Witnesses.
Baltus D. Long
Allan M. Lane Abert.

Inventor.
Arthur John Maginnis
By Attorneys
Baldwin, Hopkins, & Peyton

UNITED STATES PATENT OFFICE.

ARTHUR JOHN MAGINNIS, OF LIVERPOOL, ENGLAND.

STEAM-WINCH.

SPECIFICATION forming part of Letters Patent No. 337,175, dated March 2, 1886.

Application filed November 23, 1885. Serial No. 183,818. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR JOHN MAGINNIS, a subject of the Queen of Great Britain, residing at 51 Hartington Road, Sefton Park, Liverpool, England, member of the Institution of Naval Architects, have invented certain new and useful Improvements in Steam-Winches and such like Winding-Engines, of which the following is a specification.

10 The object of this invention is mainly to provide automatic gear for steam-winches, whereby steam shall be turned on and the winch started whenever one or more coils of a rope are wound onto one or other of the winch-barrels, and stopped whenever the rope be slacked or thrown off; also, if both barrels are winding, the throwing off of the rope from one shall not stop the winch, but allow it to continue working with the other barrel.

20 Figure 1 is a front elevation, Fig. 2 a plan, and Fig. 3 an end elevation, of the winch. Fig. 4 is a plan view, with some of the upper parts removed, of the mechanism for controlling the opening of the valve for admitting steam to the winch. Fig. 5 is a side elevation of the same with the wedges removed, and Fig. 6 an end elevation of the same. Fig. 7 is an under side view, mostly in section, of the steam-valve. Fig. 8 is a vertical section of the same, and 30 Fig. 9 a cross-section of one of its outlet-passages.

The control-gear (see Figs. 4, 5, and 6) is composed of the valve-rod A, connected to two parallel bars, B, in each of which is a longitudinal slot, B'. In these slots are received the pivots of rollers C C, which lie between the bars. Between two of these rollers is received a wedge, D, which can be worked to and fro at right angles to the bars B. Another wedge, 40 E, inclined in the opposite direction and lying on the opposite side of the bars B, works between one of these rollers and a third roller, and a bar, F, with a double incline upon it, passes between this third roller and a fourth one, the axes of which not only pass through the slots in the bars B, but are received in fixed bearings in the frame. The bar F extends to both sides of the bars B, so that it can be worked endwise to and fro either from the one side or 50 the other. The steam-valve, with which the valve-rod A is connected, is a piston-valve. (See Figs. 7, 8, and 9.) The steam enters by

the pipe G into the space between the pistons H and I and keeps the valve-rod A pressed endwise in the direction of the arrows, Figs. 6 55 and 7, and keeps the valve closed. One end of the slot in the bars B is also thereby always kept bearing against the first of the friction-rollers C. When the valve-rod is moved in the opposite direction, the movement of the 60 smaller of the two pistons uncovers ports opening into the steam-passages J and K, through which steam passes to the engine by which the winch is driven. I also form the valve in such manner that when it is closed and in the position shown in Figs. 7, 8, and 9 sufficient steam 65 can pass to keep the winch working very slowly.

As will be seen from Figs. 1, 2, and 3, the wedge D is secured by a rod, D^x, to a lever-arm, L, the end of which comes into close 70 proximity to one of the end winding-barrels of the winch, and the other wedge, E, by a rod, E^x, to a similar arm, L, the end of which is in close proximity to the circumference of the 75 other end barrel of the winch.

When either of the barrels is to be used for winding up a rope, the rope is wound with one, two, or more coils around the barrel, according to the amount of weight to be lifted. The 80 winding of the rope onto the barrel moves the lever L, and thereby moves endwise either the wedge D or E and opens the steam-control valve more or less, according to the number of coils of rope wound onto the barrel. 85

The double wedge F, or, if preferred, two separate wedges, is connected at its ends to treadles M, one near each end barrel. Any one using the winch and standing near either to one or other of the end barrels can instantly 90 stop the engine by putting his foot on one or other of the treadles M. This removes the summit of the double wedge from between the rollers C, and allows the bars B to move endwise in the direction of the arrow a sufficient 95 distance to close the control-valve, even if either one or the other of the wedges D or E be at the same time pushed inward for the purpose of opening the valve.

The levers L are, as shown, always brought 100 back automatically to their normal position by counterbalance-weights when not moved therefrom by turns of rope wound onto the winding-barrels. They will therefore return to

their original position if the rope be slacked or thrown off, and consequently the control-valve will be instantly closed on the release of the load, so that the winch is prevented from racing off and racking itself to pieces, as winches now commonly do when constructed in the ordinary manner.

There being a separate lever, L, working with each end barrel of the winch, and each being connected to a separate wedge-piece, D or E, it is obvious that if both end barrels are heaving together, and one lift stops before the other, steam will only be cut off one-half, so that the starting or stopping of the lift on one side in nowise interferes with the other; but if both loads be thrown off together the winch will at once slow down. By means of the treadles, also, the person working the winch at either end can instantly stop the winch by putting his foot on the treadle.

One advantage of being able so to stop the winch is that if the ropes be working from the center barrel the man working the fall can stop or start the winch without requiring the aid of a driver, as at present.

I claim—

1. The combination, with the winding-bar-

rels of a steam-winch or other such like winding-engine, of the levers L, the wedges D and E, to which the levers are connected, the double wedge F, connected to treadles M, the rollers C, the bar B, and the steam-valve to which it is connected, substantially as described.

2. The combination, with the winding-barrel of a steam-winch or like winding-engine, of a lever moving at its free end close to the winding-barrel, and a steam-valve operated by connection with the lever and caused to turn on steam, when, upon the coiling of the rope about the barrel, the lever is moved in one direction by the pressure of the coils of rope against its end and caused to shut off steam, when, upon throwing off or slackening the rope the lever is automatically moved in the opposite direction, substantially as and for the purpose set forth.

ARTHUR JOHN MAGINNIS.

Witnesses:

CHARLES ALOYSIUS MARIA LIGHTBOUND,
Notary Public, Liverpool.

ALEXANDER HYSLOP MAXWELL,
Clerk with Messrs. Hill, Dickinson, Lightbound & Dickinson, Solicitors, Liverpool.